

Appl. No.: 10/632,034  
Amdt. dated 05/06/2005  
Reply to Office action of February 8, 2005

### **REMARKS/ARGUMENTS**

In view of the following remarks, reexamination and reconsideration of this application, withdrawal of the rejections, and formal notification of the allowability of all claims as presented are earnestly solicited. As detailed in the Office Action mailed February 8, 2005, Claims 1-20 are pending, wherein Claims 1-3, 7-9, 12-16, and 18-20 have been rejected in the Office Action. In response to the Office Action, the Applicant traverses the rejections set forth in the Office Action, and submits that the claims define patentable subject matter over the prior art cited in the Office Action. Accordingly, notice to such effect is requested at the Examiner's earliest convenience.

#### **Claim Rejections 35 U.S.C. §103**

Claims 1-3, 7-9, 12-16, and 18-20 were rejected in the Office Action as being obvious over European Patent Application Publication No. EP 0501811A1 to Camp *et al.* In response, the Applicant traverses these rejections for the reasons set forth herein.

The Camp reference discloses a dynamically-balanced differential gas adsorption apparatus for obtaining adsorption data for surface area and pore volume analysis of a sample. The Camp device includes a first cavity 14 and a second cavity 16, which are formed to have equal volumes (Col. 9, lines 16-23). The cavities 14, 16 have a differential pressure transducer 17 engaged therebetween (Col. 9, lines 31-34). A sample chamber 20 is connected to the first cavity 14 by a line 22, and a null chamber 25 is connected to the second cavity 16 by a line 27 (Col. 9, lines 47-58). A sample dosing valve 30 is connected in the line 22 between the first cavity 14 and the sample tube 20, while a null-side dosing valve 5 is connected in the line 27 between the null tube 25 and the second cavity 16 (Col. 10, lines 6-13). The dosing valves 30, 35 are variable flow control valves (Col. 10, lines 13-23). A chamber differential pressure transducer 40 is connected between the sample tube 20 and the null tube 25 to measure a pressure differential therebetween (Col. 10, lines 25-31). There is no gas flow connection between the sample side system and the null side system (Col. 10, lines 45-47).

Appl. No.: 10/632,034  
Amdt. dated 05/06/2005  
Reply to Office action of February 8, 2005

In operation, a gas is released from each of the cavities 14, 16, into the respective chamber 20, 25, in a quantity sufficient to equalize the pressures between the chambers 20, 25 (Col. 10, lines 51-56). The differential pressure between the cavities 14, 16 is thus indicative of the amount of gas adsorbed by the sample in the sample chamber 20 (Col. 10, lines 56-58).

In this regard, the Applicant submits that there is a distinction between the term "aD sorption" (*to attract and hold substances, liquids, or gases to a surface*), as used by the '811 reference, and "aB sorption" (*to take-up or draw something into a substance through pores or interstices*) within the meaning of the present invention. The Office Action clearly recognizes that the Camp '811 reference is directed to an aD sorption measurement (Item 2 of the Detailed Action), but then improperly equates adsorption to aB sorption when applying the Camp '811 reference against the pending claims (Item 3 of the Detailed Action). Accordingly, the Applicant traverses these rejections since the Camp '811 reference does not teach or suggest measuring aB sorption properties of the sample.

Further, envelope volume is defined within the Specification as a volume defined by the outer surface of a sample inclusive of any porosity therein (Page 11, lines 9-11). In comparison, the Specification also recognizes that the envelope volume differs from the absolute volume (or apparent volume) of the sample by the porosity volume exhibited by the sample. Accordingly, embodiments of the present invention are particularly directed to determining the envelope volume of a porous sample. In contrast, the '811 reference discloses a methodology for eliminating any effect of the sample free space (Col. 19, lines 23-25) and, thus, any measurement of the sample performed according to such a procedure would represent the absolute or apparent volume or density of the sample (the volume of pores and interstices are not included in the volume of the sample) and the effect of gas adsorption (adherence of gas to the sample) on the absolute or apparent density. Accordingly, Applicant asserts that embodiments of the present invention, as represented by independent Claims 1 and 12, do not obtain the same result as the Camp '811 reference, as stated in the Office Action. As such, the Applicant further traverses these rejections since the Camp '811 reference does not teach or suggest a method of

Appl. No.: 10/632,034  
Amdt. dated 05/06/2005  
Reply to Office action of February 8, 2005

determining the envelope volume of the sample, and thus does not provide the same result as the embodiments of the present invention as claimed in independent Claims 1 and 12.

Particularly with respect to the rejection of independent Claim 1 of the present invention in the Office Action, it is well settled that "[a]ll the limitations of a claim must be considered when weighing the differences between the claimed invention and the prior art in determining the obviousness of a process or method claim." MPEP §2116.01. Further, the Applicant asserts that Claim 1 now pending is directed to a novel and nonobvious process and, even if such a process were to provide the same result as another process (where, as previously discussed, the Camp '811 reference does not provide the same result as the claimed embodiments of the present invention), the same result does not render the novel and nonobvious process unpatentable. See, e.g., *In re Muncy*, 499 F.2d 1289, 182 USPQ 303 (CCPA 1974) (Claim to a process for the production of a known antibiotic by cultivating a novel, nonobvious microorganism was found to be patentable.).

Still further, independent Claims 1 and 12 of the present invention are directed to a method and associated apparatus, wherein each claim particularly requires that a first vessel evacuated to a sub-atmospheric pressure be operably engaged with a second vessel, having the sample disposed therein and established at a test pressure greater than the sub-atmospheric pressure, by a valve mechanism configured such that opening of the valve mechanism between the first and second vessels allows the pressures of the first and second vessels to equalize to an equalization pressure, and wherein a monitoring device determines a pressure change in the second vessel when the valve mechanism is opened, the pressure change being indicative of a minimum pressure attained by the second vessel upon initial opening of the valve mechanism, and relates the minimum pressure to an envelope volume of the sample, whereby a quotient of the mass and the envelope volume of the sample provides an envelope density of the sample.

In contrast, the sample-containing chamber 20 of the Camp '811 reference is only connected to the first cavity 14 via a line 22 and a sample dosing valve 30 (FIG. 1 and Col. 10, lines 6-8). There is no gas flow connection between the sample side system and the null side system (Col. 10, lines 45-47). Further, in operation, a gas is admitted from the first cavity 14

Appl. No.: 10/632,034  
Amdt. dated 05/06/2005  
Reply to Office action of February 8, 2005

into the sample-containing chamber 20 (Col. 10, lines 51-52). Accordingly, in operation, the sample-containing chamber 20 of the Camp '811 reference is not established at a test pressure greater than the pressure of the first cavity 14, wherein the first cavity 14 is the only "vessel" to which the sample chamber 20 has a gas connection during any analysis procedure, since the gas is released from the first cavity 14 to the sample chamber 20. As such, there is no "minimum pressure" to be attained by the sample-containing chamber 20 upon opening the sample dosing valve 30 between the sample-containing chamber 20 and the first cavity 14. Still further, the only pressure measured by the Camp '811 reference is the differential pressure between the sample system and the parallel null system. That is, the Camp '811 reference does not monitor the pressure in the sample-containing chamber 20 during the process. Accordingly, the Applicant submits that the procedure disclosed by the Camp '811 reference does not determine the envelope volume of a sample, and that the Camp '811 reference does not teach or suggest how any data obtained thereby could be utilized and interpreted as an "envelope," as asserted in the Office Action. The Applicant also traverses the allegation in the Office Action that determining an envelope volume of a porous sample "is well established in the field of measurement," since nondestructively determining the envelope volume of a porous sample has been a longstanding need in the field of the present invention, as particularly discussed in the pending application, and no evidence, objective or otherwise, has been cited in the Office Action to support this allegation.

Claims 1 and 12 of the present invention particularly specify that any gas is released from the second vessel containing the sample to a first evacuated vessel such that the minimum pressure initially attained by the second vessel upon opening the valve is used to determine the envelope volume of the sample, and thus can be used to determine the envelope density. As such, the Applicant submits that Claims 1 and 12 now pending are not taught or suggested by the Camp '811 reference as alleged in the Office Action. Accordingly, the Applicants submit that the present invention, as now claimed in Claims 1 and 12, as well as Claims 2, 3, 7-9, 13-16, and 18-20 which depend therefrom, is patentable over the Camp '811 reference and, as such, respectfully requests withdrawal of these rejections.

Appl. No.: 10/632,034  
Amdt. dated 05/06/2005  
Reply to Office action of February 8, 2005

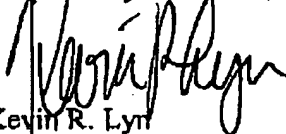
### Conclusion

In summary, European Patent Application Publication No. EP 0501811A1 to Camp *et al.* does not teach or suggest the embodiments of the present invention, as now claimed in Claims 1 and 12. Accordingly, in view of these differences between the Applicant's invention and the Camp '811 reference, it is submitted that the present invention, as defined by the pending claims, is patentable over the prior art cited in the Office Action. As such, Claims 1-20 are believed to be in condition for immediate allowance.

In conclusion, for the reasons set forth above, the Applicant submits that all claims now pending are in condition for immediate allowance. Accordingly, notice to such effect is respectfully requested at the Examiner's earliest opportunity.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

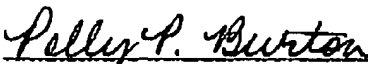
Respectfully submitted,

  
Kevin R. Lyn  
Registration No. 42,818

Customer No. 00826  
**ALSTON & BIRD LLP**  
Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000  
Tel Raleigh Office (919) 862-2200  
Fax Raleigh Office (919) 862-2260

#### CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the US Patent and Trademark Office at Fax No. (703) 872-9306 on May 6, 2005.

  
Pelly P. Burton